Species lists and statistics

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<th>Species lists and statistics</th>
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<td>Counting of number of threatened species at site, country and ecoregion levels.</td>
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<td>Species lists are generated for each protected area not smaller than 50 km² and generic statistics are reported at the country and ecoregion levels.</td>
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**Related targets**

- Sustainable Development Goal 14 on life below water
- Sustainable Development Goal 15 on life on land
- Aichi Biodiversity Target 11 on protected areas
- Aichi Biodiversity Target 12 on species

**Policy question**

Where are the areas in the world hosting most species? How many species in a country have their ranges covered at least partially by protected areas? How many threatened species are endemic and how many of these have their ranges protected? These are key questions for assessing whether conservation measures have been taken to prevent extinctions on to measuring progress on Aichi Targets 11 and 12 of the Convention on Biological Diversity (CBD).

**Use and interpretation**

Global species richness maps for birds, amphibians and mammals from the 2017.2 version of the IUCN Red List of Threatened Species™ (RLTS) (IUCN, 2017a) have been made available in DOPA Explorer’s mapping interface and the species range polygons for all species have further been intersected with the boundaries of all protected areas ≥ 50 km² to produce indicative species lists.

Overall, the species distribution maps used cover more than 35,000 species. These maps invariably represent current, known limits of distribution for individual species within their native historical range.

Species included in the Red List are classified into the following Red List categories based on Red List criteria such as rate of decline, population size, area of geographic distribution, and degree of population and distribution fragmentation:

- Critically Endangered (CR) – Extremely high risk of extinction in the wild.
- Endangered (EN) – High risk of extinction in the wild.
• Vulnerable (VU) – High risk of endangerment in the wild.

All other species fall in these last categories:

• Near Threatened (NT) – Likely to become endangered in the near future.
• Least Concern (LC) – Lowest risk. Does not qualify for a more at risk category. Widespread and abundant taxa are included in this category.
• Data Deficient (DD) – Not enough data to make an assessment of its risk of extinction.
• Not Evaluated (NE) – Has not yet been evaluated against the criteria.

Species country statistics

We define hereafter the percentage of protected species as the percentage of the species with distribution maps falling at least partly in a protected area and endemic species as the species with distribution maps falling exclusively in the country.

Using the range maps of the RLTS, we computed the following country statistics for taxonomic groups that have been globally assessed by IUCN, namely birds, mammals, amphibians, sharks & rays:

% protected: the percentage of these species having a distribution range overlapping at least in part with a protected area using all protected areas from the WDPA.

No. Globally Threatened (GT): the number of species in each class that are falling in the categories of threatened species: Vulnerable (VU), Endangered (EN) or Critically Endangered (CR).

% GT protected: the percentage of the globally threatened species found in the country having a distribution range overlapping at least in part with a protected area using all protected areas from the WDPA.

No. Endemic (E): the number of species in each class with a distribution range completely contained within the country selected.

% E protected: the percentage of endemic species having a distribution range overlapping at least in part with a protected area using all protected areas from the WDPA.

No. Threatened Endemic (TE): the number of endemic species in each class that are falling in the categories of threatened species: Vulnerable (VU), Endangered (EN) or Critically Endangered (CR).

% TE protected: the percentage of threatened endemic species having a distribution range overlapping at least in part with a protected area using all protected areas from the WDPA.

To contrast the calculated country statistics with those reported by experts, we further provide the number of threatened species by country as reported by the
Species statistics at the country level as produced by the DOPA are the result of a very theoretical exercise purely based on geometrical operations. Expert-based lists of species can thus significantly differ from the indicative lists provided here.

Species list at site level
For all protected areas not smaller than 50 km² we further propose a species lists derived from the distribution maps of more than 35,890 species from the RLTS. We cannot stress enough that species will not necessarily be present in the protected area, since the distribution maps are not depicting a homogeneous distribution of the species.

Key caveats
The species list produced for each protected area not smaller than 50 km² is derived from the processing of the data from the World Database on Protected Areas (WDPA) and the IUCN Red List of Threatened Species™ and is therefore depending on the quality of the spatial data.

The IUCN Red List of Threatened Species™ is the world’s most comprehensive information source on the global conservation status of animal, fungi and plant species. It contains a rich compendium of supporting information of the distribution range, ecological requirements, habitats and threats to species and on conservation actions that can be taken to reduce or avoid extinctions. For further details, see [www.iucnredlist.org](http://www.iucnredlist.org). Global species maps from the red list represent current, known limits of distribution for individual species within their native historical range. Although these maps have many uses, they generally have a coarse resolution and consequent limitations. Species ranges are mapped as generalized polygons which often include areas of unsuitable habitat, and therefore species may not occur in all of the areas where they are mapped. In general, for range-restricted taxa, ranges are mapped with a higher degree of accuracy, sometimes down to the level of individual subpopulations, compared with more widely distributed species.

Indicator status
Standard indicators of the Biodiversity Indicators Partnership (BIP) as an indicator to measure species conservation under Aichi Target 12.

Available data and resources

Data available
Species lists are available for each protected area ≥ 50 km² from the DOPA Explorer 2.0 website [http://dopa-explorer.jrc.ec.europa.eu/](http://dopa-explorer.jrc.ec.europa.eu/)

Data updates
Planned once a year.

Codes
Computed on Hadoop. No codes publicly available yet. For technical details see Bastin et al. (2017) and the forthcoming Species section in our Wiki at [https://dopa.wikispaces.com/Species](https://dopa.wikispaces.com/Species)

Methodology

Global species richness maps for birds, amphibians and mammals from the 2017.2 version of the IUCN Red List of Threatened Species™ (RLTS) have been made available in DOPA Explorer’s mapping interface and the species range
polygons for all species from the RLTS have further been intersected with the boundaries of all protected areas to produce indicative species lists for the protected areas (for more details see Bastin et al., 2017; Dubois et al., 2016).

In summary, the species distribution maps have been rasterized in the DOPA on a 1 km grid and used here in two ways:

Using the entire set of protected areas from the World Database on Protected Areas (WDPA), species list are generated for all designated protected areas (PAs) not smaller than 50 km² and which have a mapped boundary (polygon), except UNESCO Biosphere Reserves and protected areas recorded only as points.

The species analyses are computed using the distribution range data for species that are categorized with the following attributes: the presence is either extant or probably extant; the origin is either native or introduced, and the seasonality is breeding, non-breeding or resident.

The number of threatened species by country as reported by the IUCN are directly derived from the IUCN’s summary statistics (IUCN, 2017b).

Input datasets

The indicator uses the following input datasets:

Protected Areas
  - Latest version available from: www.protectedplanet.net

Species ranges
- IUCN Red List of Threatened Species™ 2017 version 2 (IUCN, 2017a)
  - Latest version available from: http://www.iucnredlist.org

Threatened species statistics by country as reported by the IUCN
- IUCN Red List of Threatened Species™ country summaries (IUCN, 2017b)
  - Latest version available from: http://www.iucnredlist.org/about/summary-statistics

References


Contact

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